Linking Climate Change Adaptation into the NBSAP Review Process in the Pacific

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7th August 2012

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Presentation Overview – Key Questions

1. What are the main biodiversity related impacts of climate change in the Pacific Region?
2. What are the options for supporting biodiversity (and biodiversity based livelihoods) to adapt to climate change?
3. How can Pacific Island Countries mainstream climate change considerations into biodiversity planning?
4. How can biodiversity conservation, sustainable use and livelihoods be mainstreamed into adaptation planning?
5. How can we ensure these considerations are further mainstreamed into development planning?

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1. What are the main biodiversity related impacts of climate change in the Pacific Region?

- **Temperature Means:** By 2030, the projected regional warming is around +0.5 to 1.0^{o}C
- **Temperature Extremes:** Large increases in the incidence of extremely hot days and warm nights are projected.
- **Extreme Rainfall:** Extreme rainfall events that currently occur once every 20 years on average are expected to occur four times per year, on average, by 2055.

Source: *PCCSP, 2011*

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1. What are the main biodiversity related impacts of climate change in the Pacific Region?

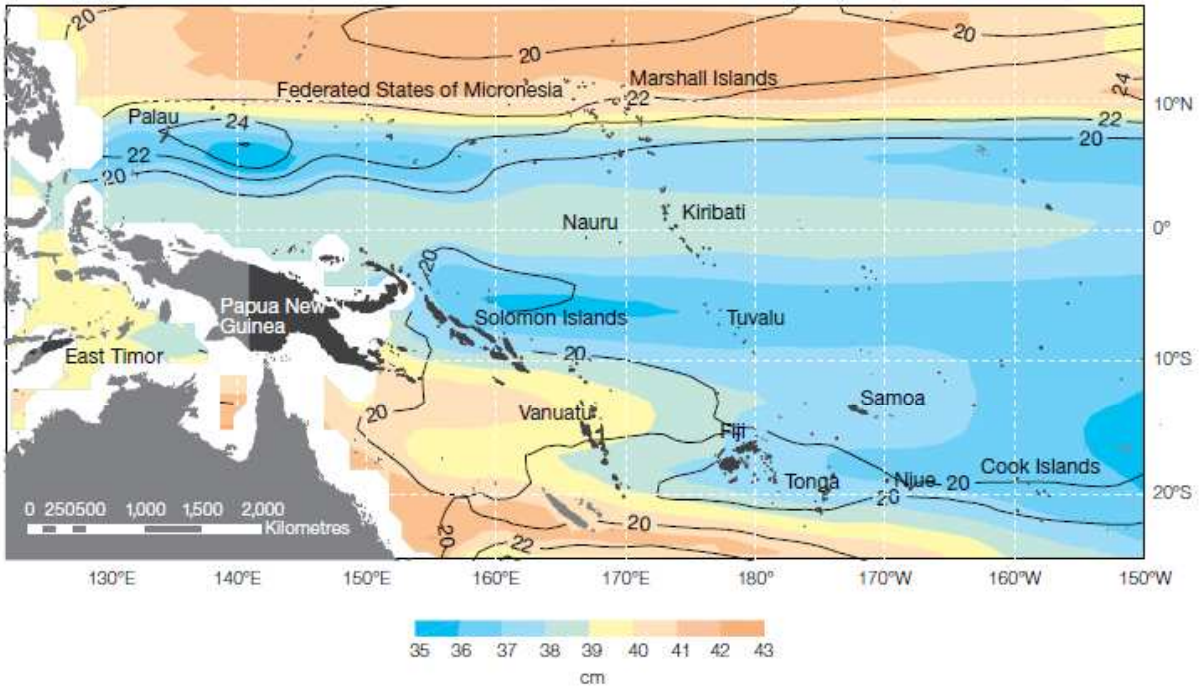

Figure ES.5: Sea-level rise projections for the A1B (medium) emissions scenario in the PCCSP region for 2081–2100 relative to 1981–2000 are indicated by the shading with the uncertainty indicated by the contours (in centimetres). The distribution of the projections of sea-level change is estimated by combining the global average sea-level projections, the dynamic ocean departure from the global average and the regional changes associated with the changing ice-mass distribution. Note that white areas indicate no model data are available for that area.

Source: *PCCSP, 2011*

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1. What are the main biodiversity related impacts of climate change in the Pacific Region?

- **Cyclones:**
  - In the south Pacific sub-basins (latitudes 0–35ºS; longitudes 130°E–130ºW), most models indicate a decrease in the frequency of tropical cyclones by the late 21st century and an increase in the proportion of more intense storms.
  - In the North Pacific sub-basin (latitudes 0–15ºN; longitudes 130º-180ºE), there will be a decrease in the frequency of tropical cyclones and a decrease in the proportion of more intense storms.
- **El Nino/La Nina:** Will continue to strongly influence year to year variability(droughts, floods, cyclones), but change is uncertain.

Source: *PCCSP, 2011*

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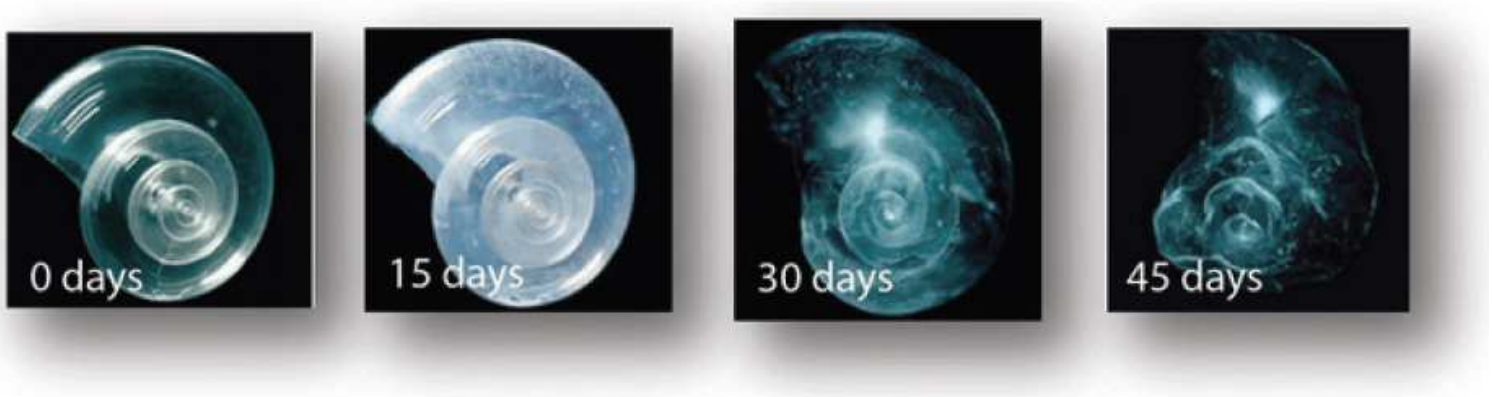
1. What are the main biodiversity related impacts of climate change in the Pacific Region?

- **Acidification:**
  - The lowest values of aragonite saturation in the region are projected to occur in the eastern equatorial Pacific affecting the easternmost islands of Kiribati **= <u>higher exposure</u>**
  - with the highest values in the region of the South Equatorial Current, affecting the islands of Cook Islands, Samoa and Tuvalu **= <u>lower exposure</u>**



Source: *PCCSP, 2011*

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1. What are the main biodiversity related impacts of climate change in the Pacific Region?

Impacts on Biodiversity:

- *Geographic range of species*
- *Disturbance regimes*
- *Production rates/carbon uptake*
- *Competitive dynamic between species*
- *Phenology*

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Characteristics of SPECIES most vulnerable

High vulnerability context and conditions
• Dependent on other species / ecosystems vulnerable to climate changes
• Threatened / endangered
• Small populations
• Limited geographic range
• Located on remote islands or mountain peaks
• Narrow climatic tolerance
• Highly specialised
• Low competitive capability
• Are exploited for use / already under stress from human use

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Characteristics of ECOSYSTEMS most vulnerable

Ecosystem	High vulnerability context and conditions
Mangrove	• No external source of sedimentation; are isolated; • Have no capacity to migrate; • Already under stress from human disturbance.
Coral reef	• Have narrow climatic, thermal and physiological tolerances; • Are situated at the mouth of watersheds (exposure to silt and pollution); • Are already under stress from human disturbance.
Seagrass	• Located in isolated areas or on submerged banks; • Are already under stress from human disturbance.

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2. What are the options for supporting biodiversity to adapt to climate change?

Options:

A. Addressing climate risk within conservation planning → Aichi Target Number 10

B. Ecosystem-based Approaches to Adaptation (EbA) → Aichi Target Number 15

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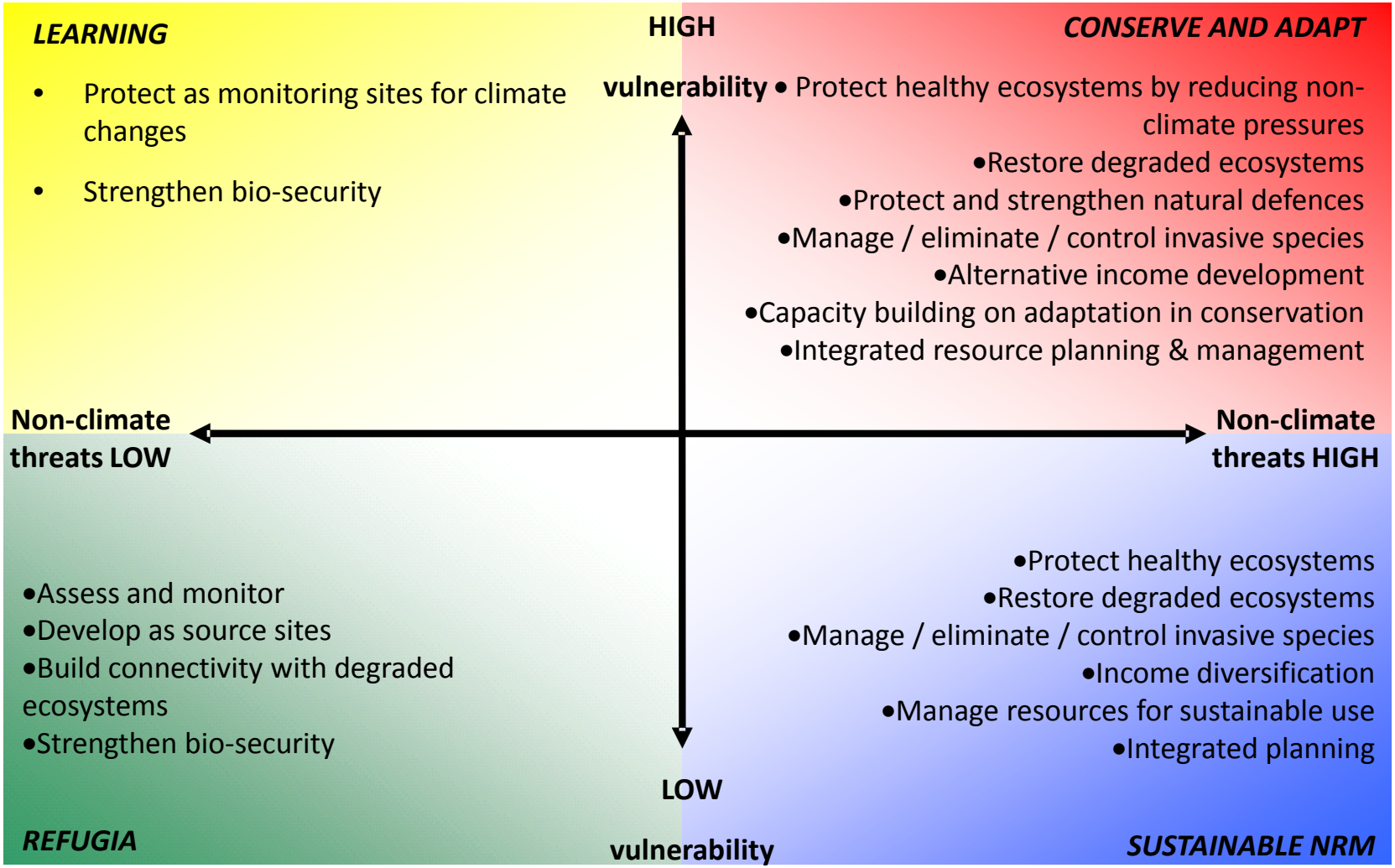
Option A: Framework for managing climate risk within biodiversity conservation planning



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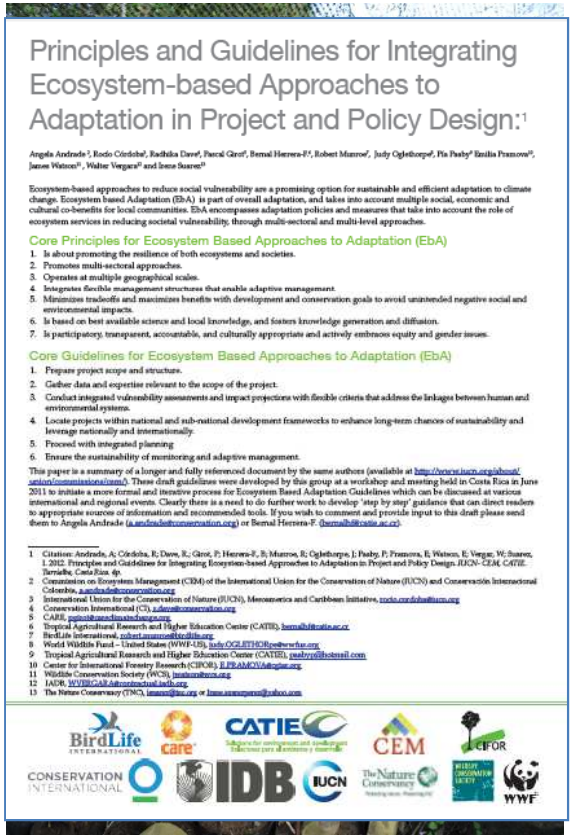
Option B: What is Ecosystem-based Adaptation(EbA)?

Adaptation that integrates the use of biodiversity and ecosystem services into an overall strategy to help people adapt to the adverse impacts of climate change

(CBD, 2009)



Principles and Guidelines for Integrating Ecosystem-based Approaches to Adaptation in Project and Policy Design:[1]

Angela Andrade[2], Rocío Córdoba[3], Radhika Dave[4], Pascal Girot[5], Bernal Herrera-F.[6], Robert Munroe[7], Judy Oglethorpe[8], Pia Paaby[9] Emilia Pramova[10], James Watson[11] , Walter Vergara[12] and Ivone Soares[13]

Ecosystem-based approaches to reduce social vulnerability are a promising option for sustainable and efficient adaptation to climate change. Ecosystem based Adaptation (EbA) is part of overall adaptation, and takes into account multiple social, economic and cultural co-benefits for local communities. EbA encompasses adaptation policies and measures that take into account the role of ecosystem services in reducing societal vulnerability, through multi-sectoral and multi-level approaches.

Core Principles for Ecosystem Based Approaches to Adaptation (EbA)

1. Is about promoting the resilience of both ecosystems and societies.
2. Promotes multi-sectoral approaches.
3. Operates at multiple geographical scales.
4. Integrates flexible management structures that enable adaptive management.
5. Minimizes tradeoffs and maximizes benefits with development and conservation goals to avoid unintended negative social and environmental impacts.
6. Is based on best available science and local knowledge, and fosters knowledge generation and diffusion.
7. Is participatory, transparent, accountable, and culturally appropriate and actively embraces equity and gender issues.

Core Guidelines for Ecosystem Based Approaches to Adaptation (EbA)

1. Prepare project scope and structure.
2. Gather data and expertise relevant to the scope of the project.
3. Conduct integrated vulnerability assessments and impact projections with flexible criteria that address the linkages between human and environmental systems.
4. Locate projects within national and sub-national development frameworks to enhance long-term chances of sustainability and leverage nationally and internationally.
5. Proceed with integrated planning
6. Ensure the sustainability of monitoring and adaptive management.

This paper is a summary of a longer and fully referenced document by the same authors (available at http://www.iucn.org/about/union/commissions/cem/). These draft guidelines were developed by this group at a workshop and meeting held in Costa Rica in June 2011 to initiate a more formal and iterative process for Ecosystem Based Adaptation Guidelines which can be discussed at various international and regional events. Clearly there is a need to do further work to develop 'step by step' guidance that can direct readers to appropriate sources of information and recommended tools. If you wish to comment and provide input to this draft please send them to Angela Andrade (a.andrade@conservation.org) or Bernal Herrera-F. (bernalh@catie.ac.cr).

1 Citation: Andrade, A; Córdoba, R; Dave, R.; Girot, P; Herrera-F., B; Munroe, R; Oglethorpe, J; Paaby, P; Pramova, E; Watson, E; Vergar, W; Soares, I. 2012. Principles and Guidelines for Integrating Ecosystem-based Approaches to Adaptation in Project and Policy Design. IUCN- CEM, CATIE. Turrialba, Costa Rica. 6p.

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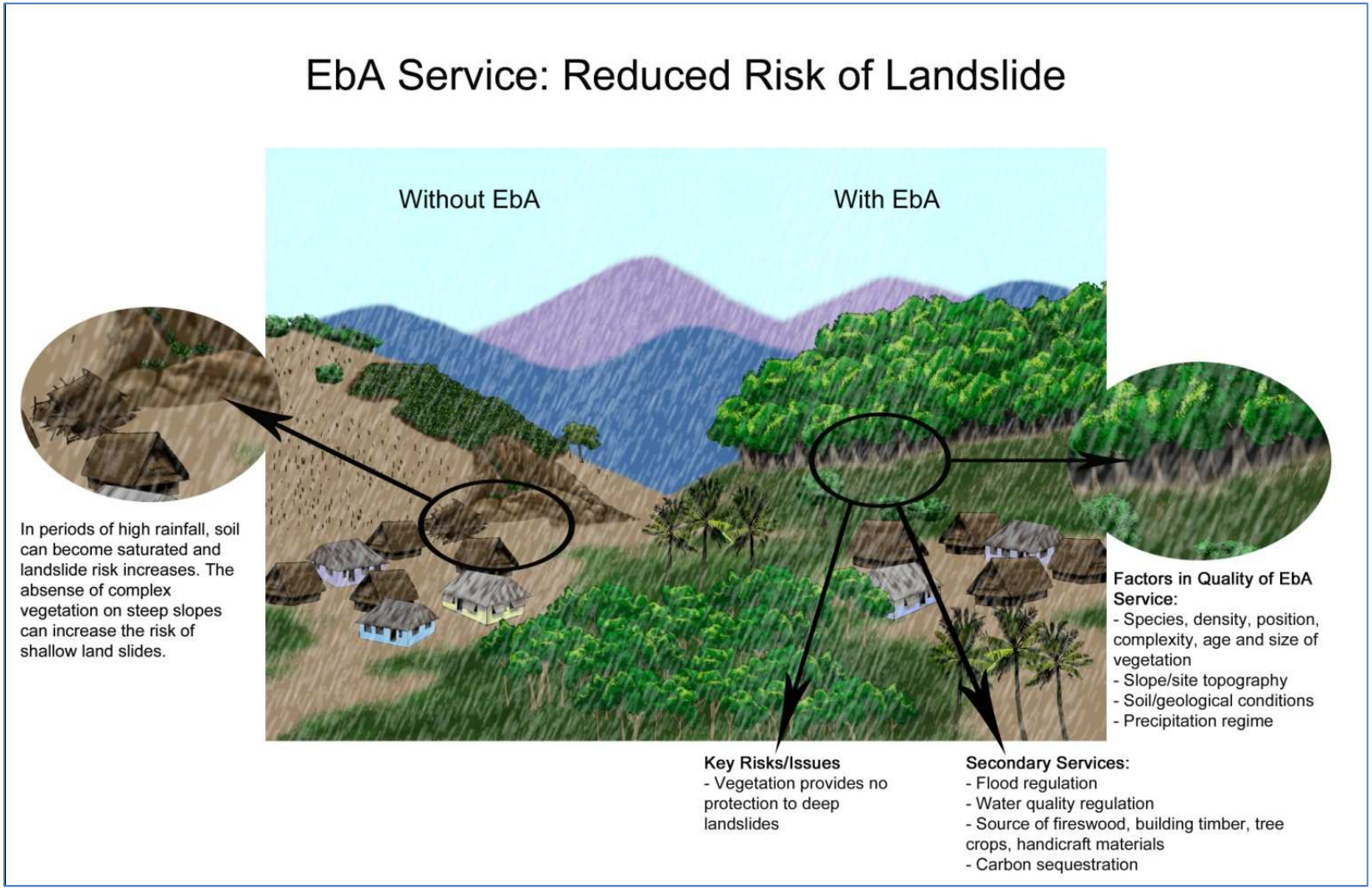
Option B: An example of EbA

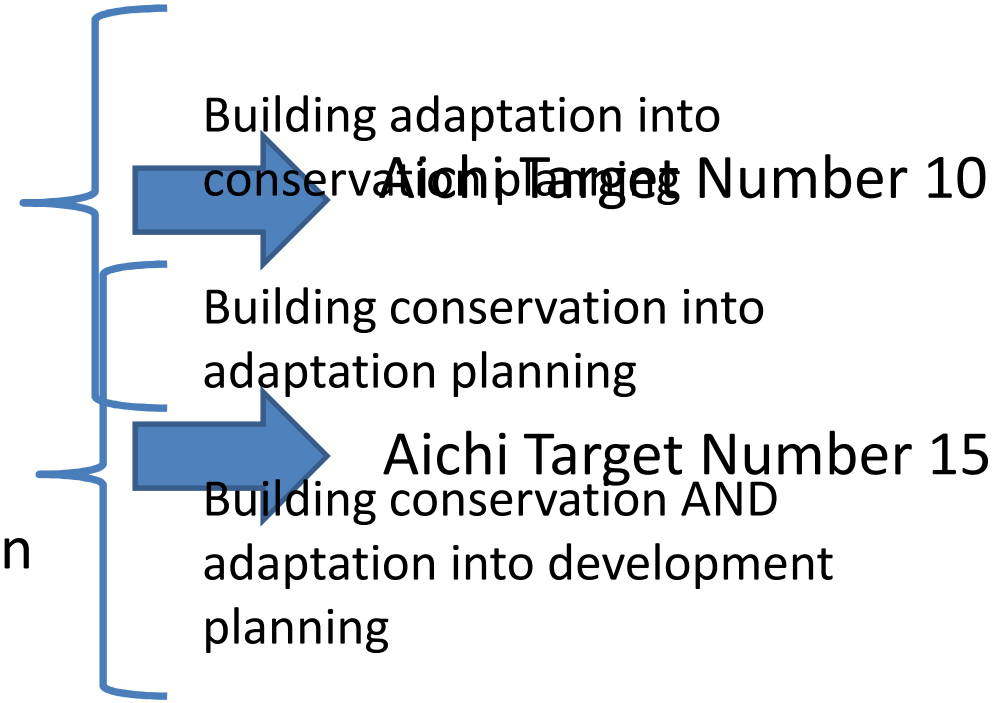


3,4,5 - Linking with Planning Processes

Options:

A. Addressing climate risk within conservation planning

B. Ecosystem-based Approaches to Adaptation (EbA)



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3,4,5 - Linking with Planning Processes

Options:

A. Addressing climate risk within conservation planning

B. Ecosystem-based Approaches to Adaptation (EbA)

Target Examples:

- By 20??, ecosystems highly vulnerable to climate change have been identified/mapped
- By 20??, baselines of key non-climate pressures on ecosystems highly vulnerable to climate change have been established
- By 20??, key non-climate pressures on ecosystems highly vulnerable to climate change have been reduced by ?%

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3,4,5 - Linking with Planning Processes

Options:

A. Addressing climate risk within conservation planning

B. Ecosystem-based Approaches to Adaptation (EbA)

Target Examples:

- By 20??, ecosystem services that reduce human vulnerability to climate change in location 'x' have been quantified/mapped.
- By 20??, ecosystem services that reduce human vulnerability to climate change in location 'x' have been protected/restored according to approved adaptation plan.

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3 - How can Pacific Island Countries mainstream climate change considerations into biodiversity planning?

Options:

- Develop/utilise a basic scanning tool and apply to NBSAPs and other planning documents
- Join existing vulnerability assessment exercises and ensure biodiversity considerations are included.
- Undertake a detailed vulnerability assessment on NBSAP (*i.e. How does expected climate change undermine the objectives of the NBSAP?*)

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4 - How can biodiversity conservation, sustainable use and livelihoods be mainstreamed into adaptation planning?

Options:

- Learn about national adaptation planning studies, processes and fora.
- Align objectives – particularly relating to ecosystem services.
- Capacity building on EbA for adaptation and conservation practitioners.
- Learn lessons from other countries on multi-jurisdictional efforts.
- Quantification and mapping of ecosystem services.

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5 - How can we ensure these considerations are further mainstreamed into development planning?

Options:

- Become familiar with development processes and fora.
- Quantification and mapping of ecosystem services.
- Present ecosystem services values in terms of national economy , food security and poverty.
- Offering training on ecosystem services to development planners.

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Thank you!

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Characteristics of ECOSYSTEMS most vulnerable

Ecosystem	High vulnerability context and conditions
Coastal	• Exposed to SLR, increased storm activity and storm surge; • Are already under stress from human use disturbance.
Montane/ cloud	• Limited/no potential to migrate upslope; • Are already under stress from human disturbance.
Dryland	• Susceptible to fire and insects as a result of increasing summer temperatures and precipitation declines; • Are already under stress from human disturbance.
Freshwater	• Close to coastal area (salt water intrusion from SLR); • Are already under stress from external disturbances (disruption/diversion of flow from dams/irrigation, barriers to species movement, or pollution).

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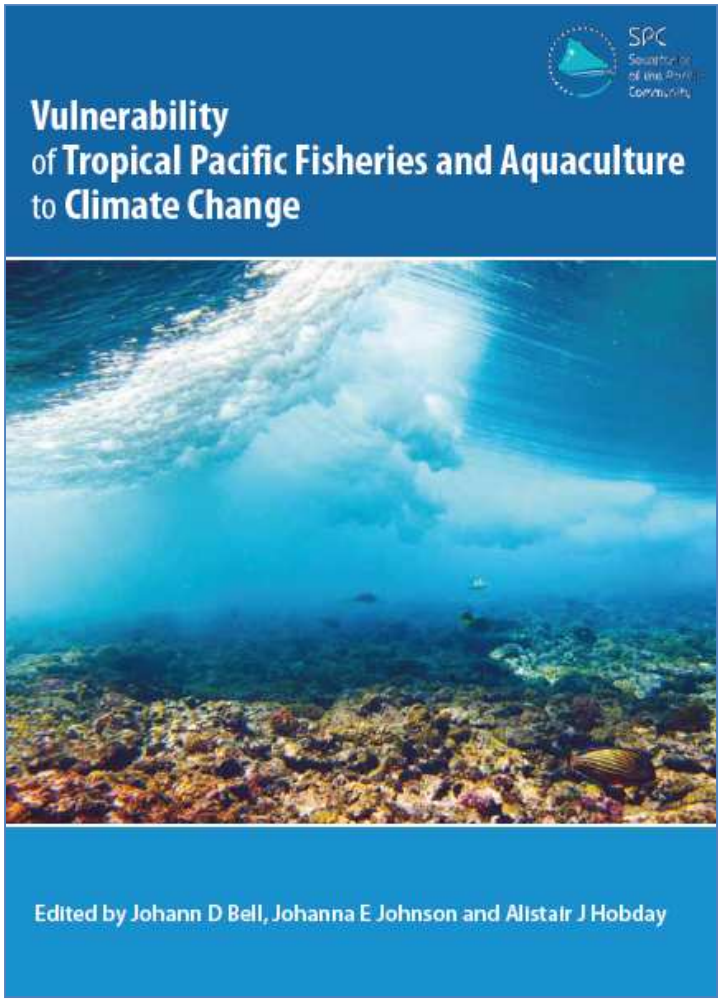
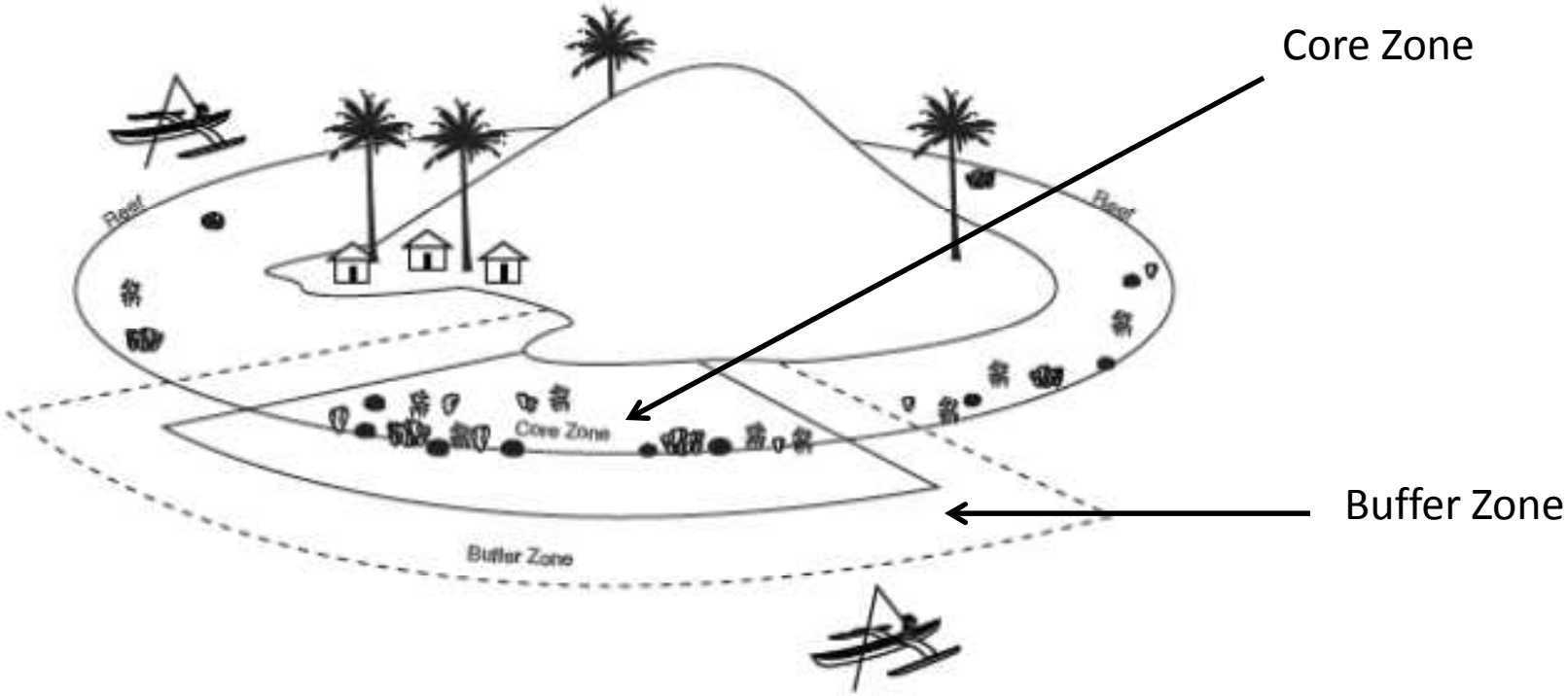
Pacific Fisheries Vulnerability Assessment

- Results released in October 2011
- 914 page report
- Food security and economic focus
- Covers impacts + proposes and assesses adaptation options



Example: Protected Areas



Establish protected areas – with no-take core zones and minimal use buffer zones.

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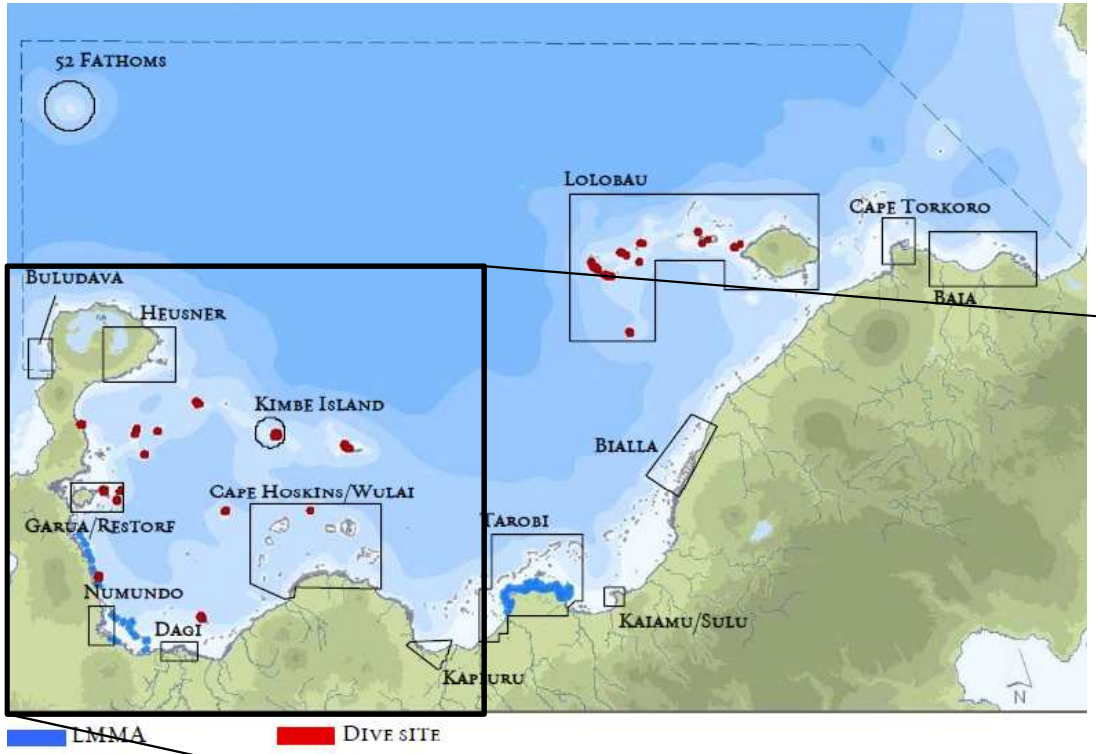
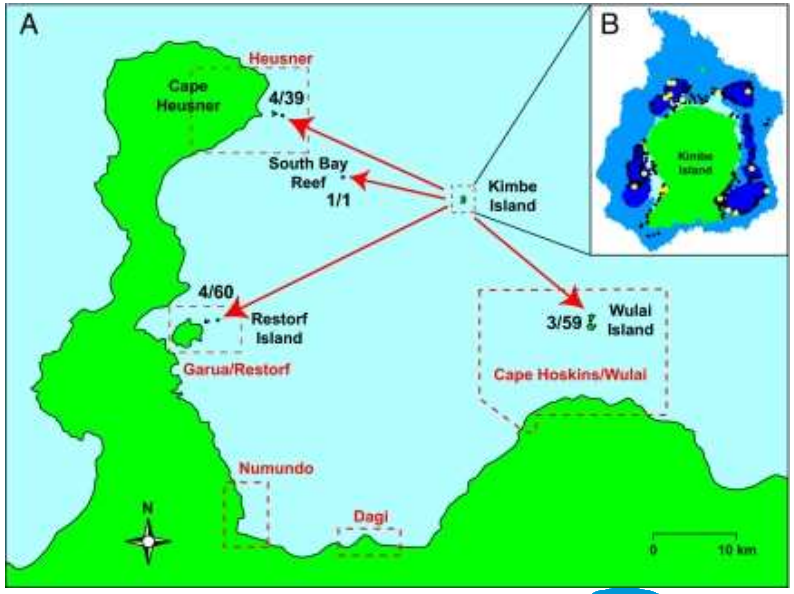
2. Increase adaptive capacity



Boxed areas showing areas of interest for conservation, LLMAs, and dive sites



DNA analysis of orange clownfish showed direct estimates of connectivity of a marine fish in Kimbe Bay, PNG.

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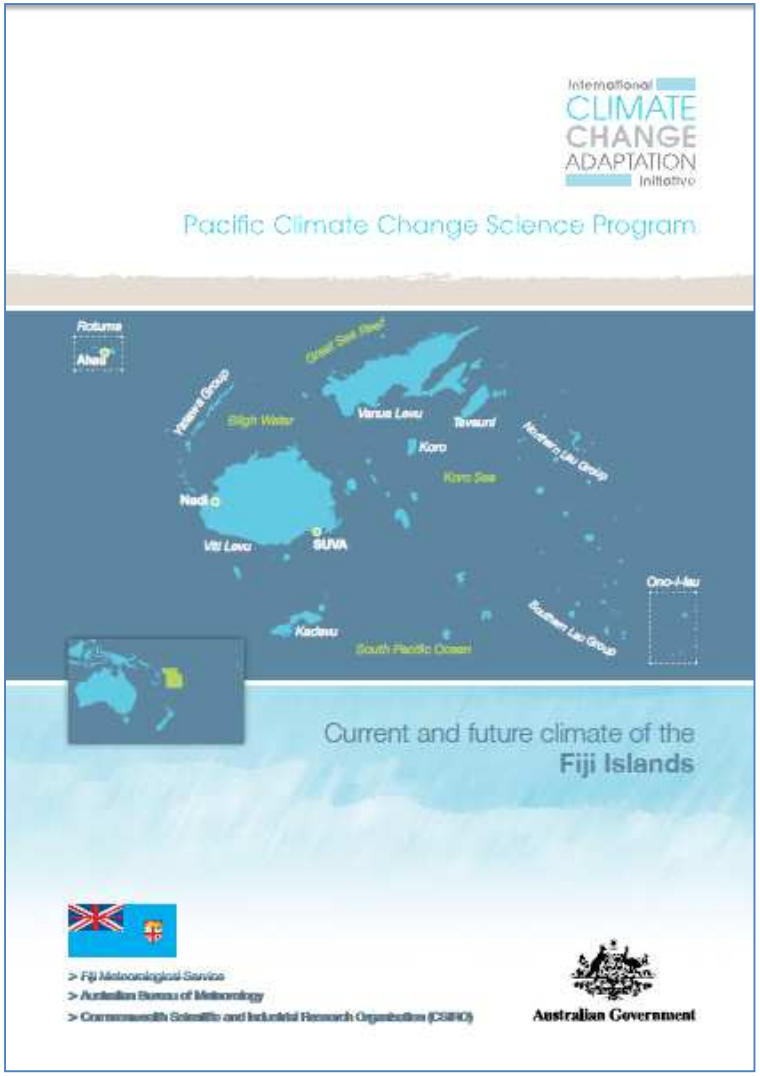
Source: Pacific Climate Change Science Program

- Results released in December 2011
- Covers historical and projected climates but not impacts
- AusAID partner countries only
- Products consist of 2 volume report, country chapters, 8 page country overviews and single page summaries



Option A: Conservation Actions for Adaptation

Allow species to adapt or migrate	
Connectivity	• Maintain/maximise ecosystem connectivity; restore corridors between sites.
Representation	• Ensure protection of full range of habitat and services.
Identify resilient species	• Protect species/ecosystems previously resilient to, or recovered rapidly from past degradation; serve as refuges and to repopulate other damaged areas.
Maintenance of biodiversity	• Maximise resilience; large areas of intact ecosystem will have high biodiversity and greatest capacity to buffer climate change impacts.
Restoration and protection	• Traditional conservation; strengthen existing protected areas, establish new areas.

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